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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/708,679  
Filing Date: March 18, 2004  
Appellant(s): LU ET AL.

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Jerome R. Drouillard  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed November 26, 2008 appealing from the Office action mailed May 9, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct. With respect to the limitation in claim 1 line 3 of "... determining a steering wheel characteristic..." note that this same limitation appears in claim 20 and applicant states that the means for determining this is the position sensor 38 which is found at paragraphs 49, lines 1-4; and paragraph 136 lines 4-7. The examiner considers this to be sufficient.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

6,588,858	Ritz et al.	7-2003
6,612,394	Wessman	9-2003
US 200300100545	TAKEUCHI	1-2003
5265019	HARARA et al.	11-1993
6,597,975	SHINMURA et al.	7-2003
6,415,215	NISHIZAKI et al.	7-2002
6,405,113	YAMAWAKI et al.	6-2002
US 2003/0144780	RECKER et al.	7-2003
US 2003/0196847	ZENG et al.	10-2003

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

**1.** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3657

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-6,20,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the U.S. publication to Wessman '616 in view of Ritz et al. and the U.S. publication to Takeuchi '545.

Regarding claims 1,20 Wessman discloses a steering control device comprising a steering transmitting device and a sensor 5 "arranged to detect at least one parameter relating to a condition of the steering actuator and generate a signal indicative of the condition..." This publication goes on to disclose a method to reduce the turning radius of the vehicle by braking. See claim 1.

Lacking in Wessman are the specific terminology of brake steering and applicant's specific terminology of the vehicle being or entering into a "U-turn". But in claim 1 note Wessman claims "...said steering position signal indicates that the steering actuator is approaching a maximum limit position.." See also the limitations of claim 2.

Ritz et al. is relied upon to expand better upon this explanation that this is in fact occurring in Wessman. Please see columns 1 and 2 and column 6 lines 47-63 (of the patent '858—for reference).

The reference to Takeuchi provides a directional control system for an electric vehicle that controls the rotational speed difference of the motors 20 drive wheels based upon an output signal that represents the steering angle of the vehicle. See paragraph 0017. Note the steering/ turning curvature is speed dependent as discussed in paragraphs 0069-0071. And as stated in paragraph 0077 “Each of these (turning) patterns are classified into a gradual turn, standard turn, rapid turn, and U-turn of the vehicle, and selected as the drive mode of the respective drive wheels in accordance with the vehicle speed.”. This reference is relied upon to show applicant’s limitation of “U-turn” is nothing more than equivalent terminology of when the vehicle is turning from one directional state of travel to an opposite one—180 degrees--and possibly at its maximum turn capability. That is, it refers simply to a state of turning of the vehicle. See also the broad definition of “U-turn” cited on the attached webpage.

It would have been obvious to have applied the teachings of Ritz et al. and Takeuchi, to that of Wessman for safety considerations, and easier turning convenience, when the vehicle enters into a curve, or when the vehicle is in the state of vehicle stability control, i.e. for increased safety.

Regarding claims 1-6,21 as broadly claimed, these requirements are fairly suggested by the references above and what is notoriously well known in the art.

Art Unit: 3657

4. Claims 7-19, 22-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessman '616 in view of Ritz et al. and Takeuchi as applied to claim 6 above, and further in view of Yamawaki et al. '113 or Nishizaki et al. '215 or Shinmura et al. '975 or the U.S. publication to Zheng et al. '847 or Harara et al. '019 and US publication to Recker et al.

Regarding claims 7-19,22-47, as broadly claimed by applicants, these limitations are well known in the art and are fairly suggested by Yamawaki et al. '113 or Nishizaki et al. '215 or Shinmura et al. '975 or Zheng et al. '847 or Harara et al. '019 and Recker et al.

To have applied the teachings of the modifying references above to Wessman '616, as modified by Ritz et al., would have been obvious to the ordinary skilled worker in the art to offer improved operator steering feel and an improved vehicle stability control system.

For instance the limitation of a “boost curve” is not given much patentable weight since this merely amounts to an obvious alternative equivalent of using steering “target”, “threshold”, or “limit” values from look up tables, or maps, stored in the ECU/Microprocessor memory to adjust the amount of brake steer. See for instance the abstract and figure 3a in the US publication to Recker et al.

#### **(10) Response to Argument**

Appellant's arguments with respect to claims 1-46 have been considered but they are not persuasive.

On page 5 of the brief Appellants state that they "... have reviewed Wessman, Ritz and Takeuchi, and none of these references, whether taken singly, or in combination with each other, either teach or suggest Appellants' claimed invention because neither Wessman, nor Ritz, nor Takeuchi, contain any teaching or suggestion that brake steering should be employed when it has been determined that a vehicle is in a U-turn. As noted above, the Examiner admits that Wessman and Ritz are bereft of any reference to a U-turn. Instead, as noted above, the Examiner turns to Takeuchi for this element"....

Appellant's also reiterate an argument made in a previous response with regard to the Takeuchi reference. In particular they continue to contend that:

"Takeuchi deals with a U-turn in the context of a wheelchair. Notwithstanding the Examiner's assertion that Takeuchi's Fig. 1 "shows a schematic of something that closely resembles such an electric car", the Board's attention is respectfully directed to Takeuchi at Paragraph 41, wherein the front wheels of Takeuchi's device are described as unsteered caster wheels. Takeuchi is not dealing with an automotive vehicle, nor with a vehicle which operates like an automotive vehicle. The Examiner has derogated Appellants' conclusion that Takeuchi teachings are inapposite to the case at bar, but Takeuchi's disclosure speaks for itself. Setting aside the question of Takeuchi's other inadequacies, the Examiner has not addressed a very real problem with Takeuchi: Takeuchi does not teach, suggest, infer, or disclose brake steering".



The reference to Wessman, teaches what may be considered to be “brake steering” as broadly claimed by appellant’s. In claim 1 Wessman claims “a steering control device for reducing a turning radius of a vehicle... having a steering actuator... sensor arranged to detect the position of the steering actuator and to generate a steering position signal indicative of said position... and braking the inside wheel when the steering position signal indicates that the steering actuator is approaching a maximum limit position.” See also the limitations of claim 2.

Ritz et al. was relied upon to provide an alternate, but more specific, explanation of a similar system(s) to that of Wessman that also uses “brake steer” to control vehicle turning. See col. 1 lines 52-58, col. 2 lines 35-40 and col. 6 lines 47-67. This reference was relied upon to provide background information, and states in a different way than Wessman, what is old and well known in the art in using “brake steer” to control the turning characteristics of a vehicle.

As previously explained to appellant’s Takeuchi states in paragraph 0002 the invention relates to... “electric traveling vehicles... such as an electric car”. Figure 1 shows a schematic that closely resembles such an electric car. Note the four motor driven wheels at 16, “the vehicle body 14” and the steering/speed and drive control units at 22 and 24. In paragraph 0007 the direction control device is a “circular steering wheel”. The basis for independently controlling (i.e. speed/steering) of each of the motor actuators 20 at the wheels is “..based upon the angle signal designated with the steering angle setting means and steering angle detection mean for detecting the angle

Art Unit: 3657

of the current traveling direction with the direct advancing state of the vehicle as the reference..." paragraph 0017.

The publication to Takeuchi clearly teaches a direction control device applied to an electric car experiencing various degrees of turn, **including a "U-turn" as discussed in paragraph 0077**, despite applicant's disingenuous interpretation of this publication to the contrary. This reference was relied upon primarily to give some definition to the meaning of "U-Turn", as broadly claimed, in a related vehicle application that uses some form of steering control to put the vehicle into such. It is maintained, however, that these teachings are inherent in the combination of references to Wessman and Ritz et al.

The reference to Takeuchi provides a directional control system for an electric vehicle that controls the rotational speed difference of the motors 20 drive wheels based upon an output signal that represents the steering angle of the vehicle. See paragraph 0017. Note the steering/ turning curvature is speed dependent as discussed in paragraphs 0069-0071. And as stated in paragraph 0077 "Each of these (turning) patterns are classified into a gradual turn, standard turn, rapid turn, and **U-turn** of the vehicle, and selected as the drive mode of the respective drive wheels in accordance with the vehicle speed.". This reference is relied upon to show applicant's limitation of "U-turn" is nothing more than equivalent terminology of when the vehicle is turning from one directional state of travel to an opposite one—180 degrees--and possibly at its maximum turn capability. That is, it refers simply to a state of turning of the vehicle.

As previously stated on page 6 of the last Office Action, it is unclear where in the specification applicant's point to some special "lexicon" of a U-Turn.

Notwithstanding this argument, when a vehicle comes off the highway onto an exit ramp frequently the vehicle enters into a turn to take it into a direction completely opposite from it's original direction of travel (such as in the case of **"Clover-Leaf"** type exit ramp(s)). This turn can easily be considered to be a "U-turn" -- no matter how tight or how broad, as broadly claimed, and both references to Wessman and Ritz address this turning state of the vehicle, even if not explicitly stating the vehicle is in a "U-turn", per se.

The previously cited webpage shows how broadly the definition of "U-Turn" may reasonably be interpreted.

It remains apparent that appellant's representative is relying upon nothing more than simple semantics for patentability of these unduly broad claims.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Christopher P. Schwartz

/Christopher P. Schwartz/

Primary Examiner, Art Unit 3657

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